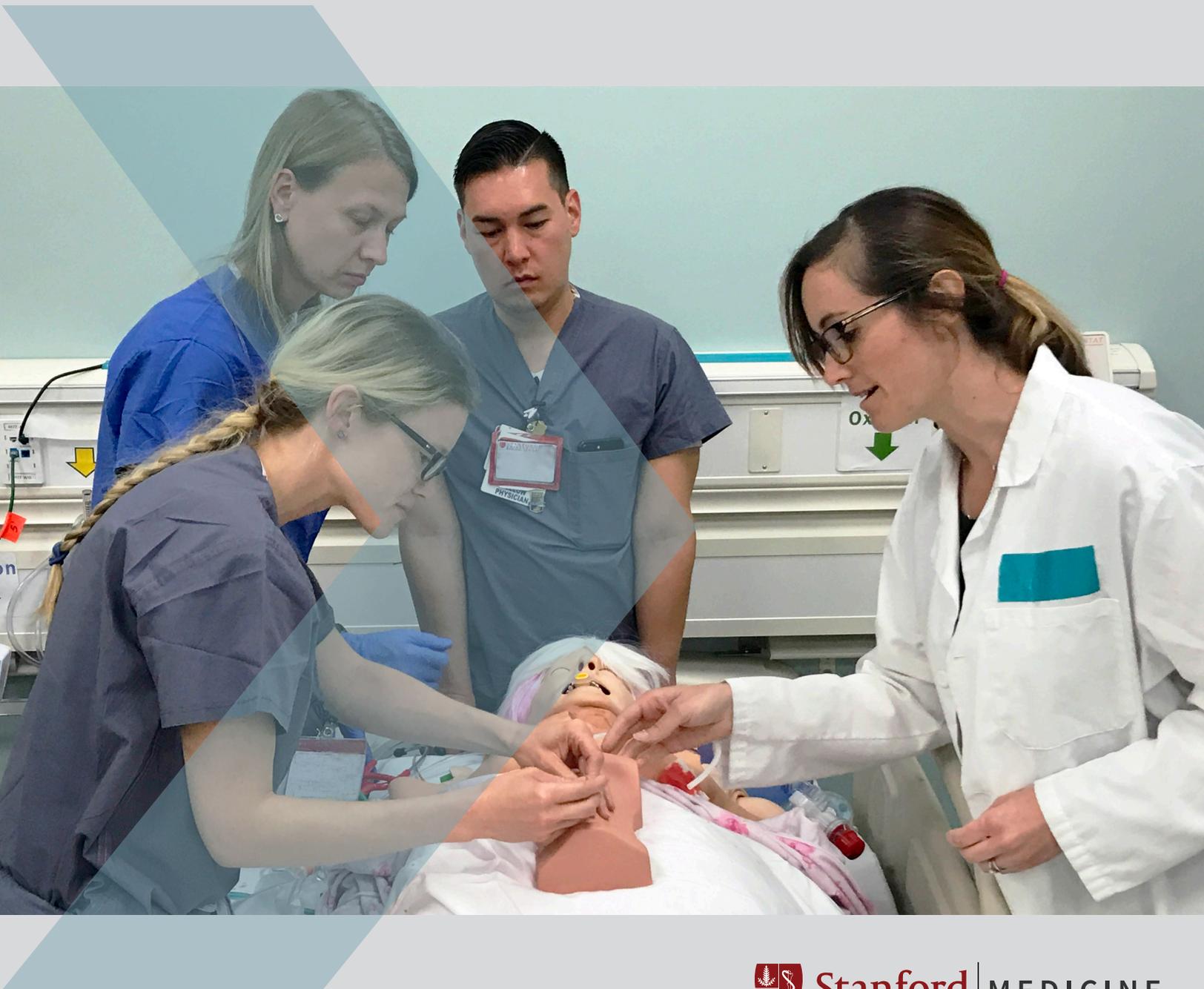




Center for
Immersive and
Simulation-based
Learning

STANFORD MEDICINE

2017 Accomplishments Report



Stanford | MEDICINE

Mission

CISL aims to improve patient safety, patient care, education, and research through innovations in immersive and simulation-based learning techniques and tools by embedding them throughout Stanford Medicine's education and training programs.

CISL Leadership Team

David M. Gaba, MD

Associate Dean,
Immersive and Simulation-based Learning

Susan Eller, MSN, RN, CHSE

Assistant Dean,
Immersive and Simulation-based Learning

Andrew Nevins, MD

Medical Director,
Standardized Patient Program

Mary Ayers

Director,
CISL Operations

Karen Thomson Hall

Director,
Standardized Patient Program

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The cover photo was taken of PICU and Peds Anes Fellows participating in focused task training.

Left: the main lobby of the Goodman Immersive Learning Center.

Associate Dean's Message



David M. Gaba, MD
Associate Dean,
Immersive and Simulation-based Learning

It's that time again! The annual Accomplishments Report of the Center for Immersive and Simulation-based Learning (CISL) is here again, providing a look at what was new in the preceding academic year in immersive and simulation-based learning (ISL) in the Immersive Learning Center of the LKSC and elsewhere. Over the last 13 years many of the "new" activities and individuals described in our Reports have quickly become a regular part of teaching and scholarship for our varied spectrum of participant populations.

We continue to be grateful for the founding gift of Mr. Li Ka Shing for the LKSC and of the continuing generosity of Hon-Mai and Joseph Goodman, the primary donors for the Immersive Learning Center (ILC), for providing the opportunity to create and conduct powerful activities for teaching, learning, and scholarship in this world-class integrated center where all modalities of immersive and simulation-based learning can exist in one spot.

This past year we were both happy and sad to wish bon voyage to Dr. Alexandra (Lexi) Buchanan who served as the Director for Simulation and Education. Lexi returned to her native Australia, along with her husband Sam, and new baby, Jack. Lexi will complete her residency training as an anesthesiologist and her extensive expertise in simulation is already sought after by academic centers down under. While we are happy for Lexi and family, we are sad to lose her knowledge, skills, and camaraderie.

We continue to strive to increase the applicability of immersive and simulation techniques into all facets of teaching, learning, clinical process improvement, and research. Over the last few years we have been evaluating commercial hardware and software for various types of virtual reality. Look for a full description of the new CISL Virtual Reality Initiative in next year's edition of the Accomplishments Report!

Stanford faculty and staff continue to be world-recognized leaders in ISL techniques, applications, and technologies who are highly sought as teachers, scholars, advisors, and collaborators. We increasingly are seeking to emphasize interprofessional "combined team" training wherever possible as a critical way to hone the ability of the entire healthcare team to provide the highest quality and safety of patient care.

CISL as an organization, Assistant Dean Susan Eller, and I personally, would like to thank the many people involved in the inception, conduct, and support of immersive and simulation-based learning at Stanford. By their efforts we are certain that many individual hearts, brains, or lives around the world have already been saved. We remain steadfast in our pledge to continue these efforts for the benefit of all.

A handwritten signature in black ink that reads "David M. Gaba, MD". The signature is written in a cursive, flowing style.

Improve Patient Safety and Care

OBGYN Clerkship Maternal Cardiac Arrest Simulation

Dr. Kim Harney and her team have provided medical students on the OBGYN clerkship with a new capstone simulation case experience that is a joint venture with CISL and the Center for Advanced Pediatric & Perinatal Education (CAPE). As members of a multidisciplinary team, the learners resuscitate a mother in cardiac arrest. With maternal circulation no longer supporting the fetus, rapid delivery of the fetus and advanced neonatal resuscitation are critical and neonatal resuscitation must be accomplished as well. Students work alongside maternity nurses and anesthesia residents to respond to the challenges of the first five minutes to expedite the delivery. In the simulation suite, students have the unique opportunity to perform this cesarean delivery.

In this rare but critical event, the patient's outcome may depend on providers from various disciplines utilizing the American Heart Association (AHA) modifications for Advanced Cardiac Life Support (ACLS) in pregnancy. These recommendations come from the Scientific Statement on Cardiac Arrest in Pregnancy, that was authored in part by several colleagues at Stanford. Following a return of the mother's spontaneous circulation (ROSC) – which happens in a large proportion of such cases – managing her critical situation will need all available information, including bedside echocardiography, an additional aspect of the training experience. Communication to the medical code team will be more complex than in nonpregnant adults as a large proportion of arrested mothers experience Return of Spontaneous Circulation (ROSC).

Students may not have had any exposure to ACLS prior to this experience; it may be their first introduction to analyzing cardiac



rhythms and assessing the various possible causes of PEA/Asystole. They practice positive pressure ventilation and receive feedback on their chest compressions from the electronic patient simulator. This simulation often also provides their first experience working within a multidisciplinary team. They appreciate and comment on the realism of this kind of immersive learning compared to having only students playing these roles. It is a significant logistical challenge to schedule these varied groups of participants: medical students, RNS, MDs (OBGYN, Anes, Neo) at the same time, and to ensure that content experts from several of the disciplines are available to jointly prepare and then debrief this new and challenging scenario. The simulation also requires content experts from several disciplines whose contributions are invaluable to the preparation and debrief of the new scenario.

InterCEPT

In an effort to encourage all who care for patients in the operating room (OR) at Stanford to have a voice and speak out for patient safety, the OR education leadership, the Risk Authority, the departments of anesthesia and surgery, the Goodman Surgical Education Center (GSEC), and the Center for Immersive and Simulation-based Learning (CISL) have banded together to create Interprofessional Communication Education Program on Teamwork (InterCEPT). This program imbeds monthly interprofessional in-situ simulations in the main operating room and ambulatory surgery center into standard work processes. These simulations and debriefs of high-impact crisis situations bring about individual realizations, teamwork and systems improvements, and a culture change to emphasize patient safety and collaborative care for patients and also each other.

InterCEPT began in Fall of 2017 and is now in its seventh month of monthly simulations with great grassroots support. Themes that have emerged resulted in the administration clarifying emergency contingency protocols and in purchasing additional critical equipment for airway emergencies. This stand-alone activity is now supported by a full time simulationist and project coordinator. This initiative has leveraged team training to now empower everyone in the operating room to speak out for patient safety.

Heme Onc APP Fellowship / Simulation in Interprofessional Fellowship Training at CISL

Starting in September 2016, the Center for Advanced Practice (CAP) at Stanford Health Care developed two advanced practice provider (APP) fellowship programs in Hematology/Oncology and Emergency Medicine for nurse practitioners and physician assistants to receive additional training in these subspecialties. Simulation plays a vital role in both education and evaluation of clinicians because it provides a safe space to explore infrequent, high risk, or nuanced clinical scenarios. The clinical training in the simulated environment offers the opportunity to delve deeply into recognition and initial management of difficult clinical situations with experienced faculty, ensuring that they will be able to evaluate and manage these patients in the future.

The simulation program for the APP fellowship is co-led by an interdisciplinary partnership. Kimberly Schertzer, MD, Clinical Assistant Professor, Department of Emergency Medicine and Garrett Chan, PhD, NP, Clinical Associate Professor, Division of Primary Care and Population Health with courtesy appointment in the Department of Emergency Medicine, have created simulation scenarios to address APP fellowship curriculum competencies. Specialty care competencies and professional development competencies often relate to events that are infrequent in the clinical environment or require high-touch interactions can be used as guidance for teaching clinical decision making and interpersonal communication skills and as the basis for methods of performance assessment of fellows as they progress through their training.

Evaluations by the fellows of their simulation experience have been very positive. They have reported great personal, professional development, and clinical value. They have also appreciated the differences and synergies in the debriefings from both the physician and APP perspectives. The APP fellowship program will continue to improve and refine the simulations based on participant feedback while fulfilling the curricular requirements of the program.

Innovate Education and Research

5th Annual Ultrafest



Ultrafest is a free day-long medical student symposium on point-of-care ultrasound. Each year, over 200 students register, representing various medical schools in California and a few from neighboring states. Over 20 attending faculty from different departments, including emergency medicine, general surgery, anesthesia, internal medicine, cardiology, rheumatology, critical care, pediatrics, family medicine, obstetrics and gynecology volunteer their time at this weekend event to teach these enthusiastic learners.

Each student is enrolled in five pre-selected ultrasound workshops, including critical care, echocardiography, orbital, musculoskeletal, trauma, pediatric, abdominal and procedural. The workshops are completely hands-on, giving each student plenty of time and opportunity to perform ultrasound scans on hired standardized patients or procedural part-task trainers in small groups facilitated by expert faculty. The course also provides advanced clinical case practice within the Immersive Learning Center. These cases combine state of the art simulation mannequins, dedicated faculty, and an expert simulationist to ensure smooth running of equipment and cases.



Master of Science in Physician Assistant Studies (MSPA) Program

In the fall of 2017, Stanford School of Medicine proudly welcomed students into the new Master of Science in Physician Assistant Studies (MSPA) program. The Stanford MSPA program seeks to develop highly skilled clinical PAs and inspire PA students to become leaders through work in one of several scholarly concentrations; community health, clinical research, health services and policy research, and medical education. During the three-year program, students will be educated by exceptional Stanford clinical faculty, will develop leadership skills, and will experience clinical practice in Stanford's robust healthcare infrastructure.

The inaugural class of 27 students enrolled at Stanford in August 2017. The MSPA students are fully integrated with Stanford medical students in the Practice of Medicine (POM) course's simulation-based activities, especially those using standardized patients. Activities with mannequin-based simulation and task training begin in the first year and accentuated in the second. Dr. Andrew Nevins, Medical Director for CISL's Standardized Patient Program, has taken on the added responsibility of being medical director for the MSPA program. CISL is excited to partner with the MSPA program leadership in creating other new and exciting simulation-based exercises during the three-year MSPA program.

MED 313: Ambulatory / Emergency Medicine Core Clerkship

MED 313 is a new required core clerkship in the School of Medicine that combines elements from ambulatory medicine and emergency medicine. The course directors sought to go beyond medical knowledge and to focus on the heart of what this clerkship addresses: transitions of care. A driving factor in shaping the curriculum was the variety of resources provided by CISL. High-fidelity simulation is a commonly used educational modality in many clerkships to teach medical knowledge and clinical decision making. As such, these simulation cases are written specifically with that objective in mind. Cases were written to specifically address some of the transition of care issues that arise in medicine, including the approach in the management of patients sent to the Emergency Department from clinic or MD's office, knowing when to ask for help in the setting of a decompensating patient, and learning how to properly discuss cases with the referring physicians.

The other main objective in the MED 313 curriculum with SIM is to address the role of the medical student in the Emergency Department setting. The unique population of undifferentiated and often sick patients are being seen initially by the medical student, so additional simulation cases were designed to best prepare them for this task. Many other simulation curricula are designed to allow the medical student to play the role of the physician; rarely do they challenge the medical student in their own role as student. This modality of roleplay as themselves leads to interesting debriefs and discussions about what to expect. Initial clerkship evaluations have shown these exercises to be highly effective in preparing students on what they will experience when seeing patients in the Emergency Department.

Otolaryngology Bootcamp



The Otolaryngology Department

is in its second year of simulation involving otolaryngology emergencies. In 2017, educational activities within the Immersive Learning Center included bootcamps to teach control of epistaxis, evacuation of auricular hematomas, and airway fire management. Learners also completed annual airway task training to practice skills from basic mask ventilation to emergent cricothyroidotomy. 2017 was unique in that it was the inaugural year of a medical student plus ENT resident combined simulation task training event held with the Otolaryngology medical student interest group. This combined course was a great success, with over 60 interested medical students participating, and great feedback for future events.



FACULTY SPOTLIGHT

Steve Howard, MD

Professor of Anesthesiology,
Perioperative and Pain Medicine
Palo Alto Veterans Affairs Health Care System



Q What do you enjoy most about working in simulation?

A I enjoy the active teaching aspect of simulation – especially with small and engaged groups of clinicians. I love discussing real world problems with intelligent people – striving to improve the care that we provide. I like seeing learners have “a-ha moments” and encouraging them to translate the work in simulation to the “real world.”

Q Where do you see the future of simulation going?

A Over the course of 25 years, simulation education has grown by leaps and bounds. But I don't think it has become part of the fabric of care as much as I would like it to be. I would hope that health care decision makers will continue see the benefits of this work and allow clinicians and teachers the opportunities to get together and train. Even though this can be organizationally difficult, the payoff for clinical staff and patient care is huge. I believe more and more teams will use simulation to train together and this will give opportunities for safer care.

Q How did you get into simulation?

A I started my anesthesiology residency at the VA Palo Alto – the first faculty I met was Dave Gaba and we became fast friends. At that time, Dave had finished a series of studies on cognition of anesthesiologists and had received funding from the Anesthesia Patient Safety Foundation to create a course that he termed Anesthesia Crisis Resource Management (ACRM). The idea of practicing crisis management using simulation made as much sense then as it does now! He invited me to participate in the creation of the ACRM training and then convinced me to do a fellowship in simulation and patient safety. We are now more than 25 years into it! Dave is a Deadhead and he recruited me by taking me to a Dead show at Frost Amphitheater on Stanford campus. How could I say no after that?!

Q What advice would you give to young educators and researchers?

A

- 1) Find a great mentor.
- 2) Enjoy the process.
- 3) Find and recruit smart colleagues and friends.
- 4) Continue to push the bar and don't forget to look back at what you have accomplished.
- 5) Take a break every now and then to rejuvenate.

MED 300: Internal Medicine Core Clerkship

The MED 300 clerkship orientation was updated this year to make certain our students felt well-prepared for the challenges of inpatient medicine. The orientation day starts with the students headed to one of four sites where they will spend their first month. They have a site-specific orientation that morning then join their internal medicine teams for rounds. When rounds are finished, they come to the ILC for lunch and to hear about how to be successful on the clerkship. After lunch, they are given an introduction to the simulation learning environment and have a chance to examine the mannequin. Four students volunteer to participate in the first simulation of the afternoon while the rest of the group returns to the classroom to observe the group during their simulation. The group in the simulation is asked to assume the role of internal medicine interns they will be working with during the next two months. They are asked to work together as a team and act as the patient's doctor. The cases the students work on are designed to be very straightforward without significant diagnostic challenges. During the simulation, the students discover that while they know the general outlines of how to care for a patient with this diagnosis they are lacking in many of the specifics of management and work-up. During the debrief, we have a chance to reflect on how they can handle situations when they do not feel they have sufficient knowledge or experience to manage a situation as well as who is available to help. More importantly, the simulation is meant to motivate them to pay closer attention to specific management decisions that are being made by the medical teams and to inspire the students to ask those teams questions whenever they don't understand the management plan. The other reason for the simulation is to give all of the students a chance to practice different types of presentations they will be asked to give



during the clerkship. Presentations range from the detailed and formal to the very brief and informal. The students break into groups and practice presenting the patient and getting feedback. We then do a different simulated patient encounter to give more students an opportunity to practice. Overall, the students are engaged and ask great questions but we are still awaiting more formal evaluations of how they view the orientation.

Outreach to Communities

Inaugural Stanford Anesthesia Summer Institute

The inaugural Stanford Anesthesia Summer Institute (SASI) occurred at the ILC June 19-30, 2017. This is a new summer program that is committed to encouraging compassionate careers in science, technology and medicine by pairing faculty from the Stanford School of Medicine with patient experts and compelling patient narratives. The program is also committed to supporting students who from populations that are underrepresented in biomedical research, science, technology and health professions. This year's program consisted of 80% female students and 92% of students were from underrepresented backgrounds; 40% of all students received scholarships to attend SASI.

The two-week summer program is designed for high school and pre-medical undergraduate students interested in pursuing careers in medicine, STEM, medical research and development, or health care design. The program has a special focus on the fields of internal medicine, anesthesiology, perioperative, and pain medicine.

SASI provides clinical observation opportunities in the operating room, hands-on experience with clinical and basic life support (BLS) skills, anesthesia skills, interactive lectures, and mentorship from attending physicians, residents and medical students from Stanford University to foster career development in the health professions.

Students also have the opportunity to pursue brief, independent research on a medical topic of their choice and engage with scientific research methods under the guidance of a faculty mentor. Featured capstone projects include clinical, 3D printing, and scientific research.

SASI students represent diverse cultural and geographical components of the health care landscape. All of the selected students have demonstrated excellence in science aptitude and/or leadership skills that identify them as future leaders in health-related science engineering, medical research, or health professions.

A video of the program can be found here:
<https://youtu.be/ykHweBVlTrA>



STAFF SPOTLIGHT

Madika Bryant

Administrative Director,
School of Medicine, Student Affairs



Q Tell us a bit about your background.

A I was born and raised in Las Vegas, Nevada. I went to undergrad at Howard University in Washington, D.C., where I studied English and chemistry (I was originally a pre-medical student). I then spent a year in Japan on a Fulbright fellowship, after which I came to Stanford, where I received a masters in East Asian Studies (my focus was on pre-war Japanese literature and history).

Q How did you get involved in POM and what/who inspired you to work at POM?

A I started working at Stanford Medicine as a student worker with SUMMIT (now part of the Education Technology group), as the school was transitioning to its “new” curriculum (circa 2003). After I received my masters, I decided to apply for an open position with the new doctoring course. I wanted to know a bit more about the medical school curriculum, and wasn’t sure if I wanted to continue in my academic studies to a doctorate.

Q Who were some of your mentors you met along the way?

A My mom and dad were crucial in showing me how to work hard and be reliable. Brenda Lavell, who was the division manager for GIM (general internal medicine) at the time I was hired, really gave me most of my foundational skills in the workplace. She always articulated why we were doing the things we were doing, how important it was to be trustworthy to others, and how to think through decisions to anticipate the impact to others.

Q What have been some of the biggest hurdles/challenges along the way?

A Obviously, having been with the course for so long, I have seen transitions in staff and faculty throughout the years. While it is challenging to adjust to different working and leadership styles, I have seen this as an opportunity to infuse new ideas and energy into the curriculum.

Q What surprised you the most about your job?

A I was surprised that I stayed so long! I initially didn’t imagine that I would be with medical education as my career; I had always assumed I would go back to school to get a PhD. And yet this job has allowed me to develop so many different skill sets, and be involved in lots of different projects – it keeps things interesting!

Q What might someone be surprised to know about you?

A I think most of my co-workers know this, but I actually am pretty shy, and I hate speaking in front of other people. It usually takes me about an hour and a half to get up the nerve to make announcements in front of the class.

Q What do you do when you’re not working?

A I do most of the cooking/baking for my family, so I like menu planning and preparing meals. I attempt to make it through about 50 books per year (and usually get pretty close).

Standardized Patient Exhibit at the San Francisco Museum of Modern Art

Standardized Patient is Kerry Tribe's most recent project. A two-channel video projection commissioned by SFMOMA for its New Work series, the project offers insight into the work of Standardized Patients (SP's) – professional actors who portray patients in a simulated clinical environment as part of medical students' training. The installation features an angled screen that presents a progression of SP encounters on one side and a synchronized montage of supporting materials on the reverse. Fragments of the patients' scripts, diagnostic flow charts, and textbook illustrations offer glimpses of the kinds of information that underlie the action. Such an encounter format suggests that these performers inhabit a dual headspace – holding conversation while mentally tracking checklist items to be submitted afterward – an inversion of roles in which the "patients" are now the evaluators. The paradox of the SP exam lies in its artifice: both parties are acting while also being themselves. Yet there is the potential for medical student and actor to connect when both willingly suspend disbelief. The project explores questions of empathy, communication, and performance, and was developed through Tribe's close collaboration with professional clinicians, communication experts, and Standardized Patients at Stanford University and the University of Southern California.

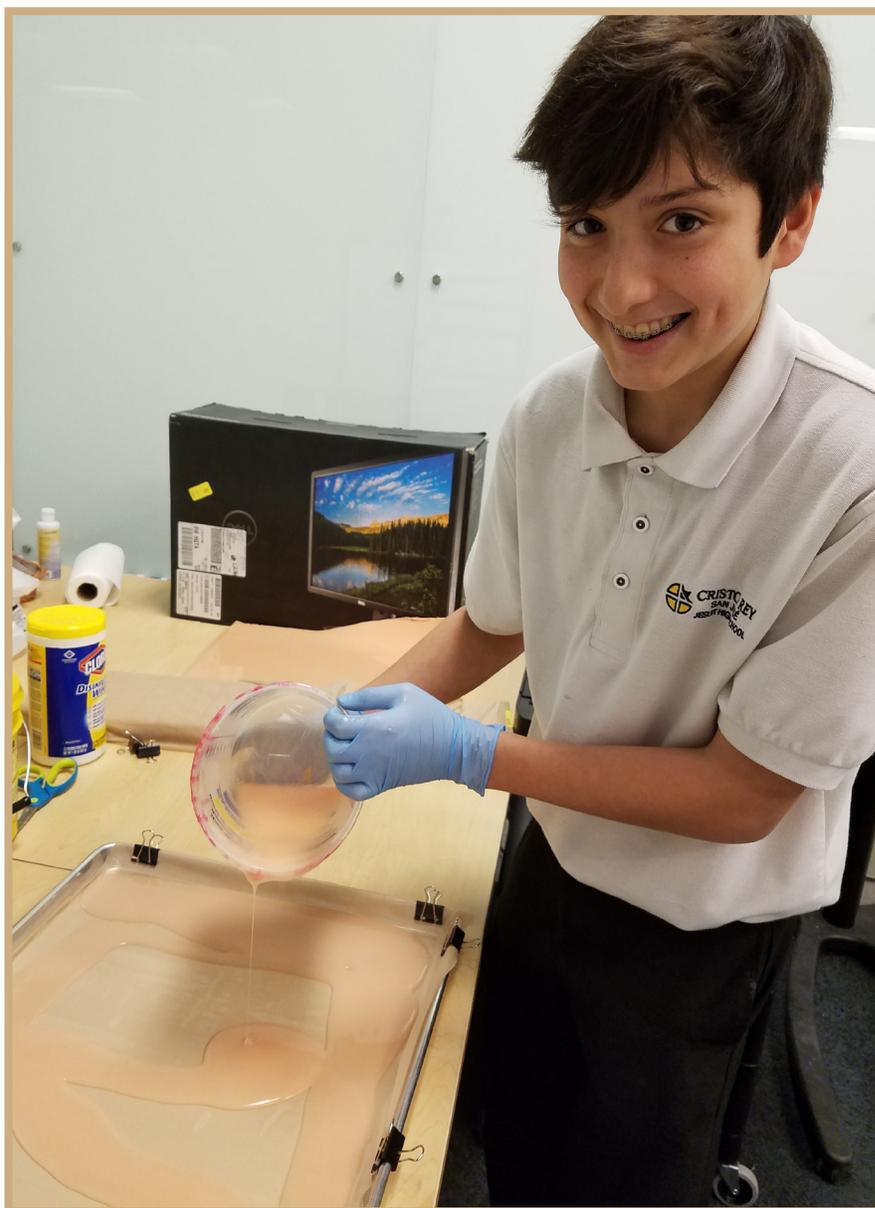
Tribe and her cinematographer spent a day at the ILC filming the facilities. This footage was intercut with SP encounters that were filmed at USC's Keck School of Medicine. The inclusion of the material shot at the ILC greatly expanded the scope of the work by providing visuals for some of the many ways in which simulation is used to support medical training and education.



Standardized Patient actors filming for Tribe's project.

CISL Welcomes Cristo Rey Student as Sponsored SoM Community Outreach

In 2017, CISL welcomed high school student Jose Magallanes as part of our team through the Cristo Rey Corporate Work Study Program (CWSP). Every Cristo Rey student takes a full course load of college preparatory coursework for four years, as he or she participates one day each week in a four-year CWSP to fund the majority of their tuition. While initially serving as simply a financial proposition to pay the operational costs of the school for students who otherwise would not have the financial opportunity to attend a private college preparatory high school, the CWSP has realized many real-world benefits for its students. The program has evolved into an innovative means of providing students with crucial hands-on work, while simultaneously empowering them to assume an active role in financing a major portion of their education. As a result of working in a business environment, students acquire valuable job experience and marketable skills, develop a network of business contacts, gain exposure to a wide range of career opportunities, refine a strong work ethic, and increase self-esteem.



Jose Magallanes, CISL student worker from Cristo Rey San Jose High School, creating silicone skins for medical simulations.

“Jose’s skins are better than any skins I’ve made myself!”

- Dr. Edmund Lee, Stanford School of Medicine, General Surgery

Jose has adapted to the CISL team very well, with his friendly demeanor, attention to detail, and high productivity. During his early weeks at CISL, Jose was assigned basic tasks, but his self-reliance and attention to detail were so outstanding that we felt comfortable giving Jose tasks usually completed by professional simulationists. Jose became our “skin-maker-in-chief,” creating the silicone skins which were used in six medical simulations for the Stanford Surgery Department. Our team already appreciated Jose’s beautiful, careful work creating the skins, and it was even more gratifying when the surgical doctor leading the simulation commented, unprompted, that Jose’s skins were much better than any skins he himself had ever made!

Publications and Presentations

Maintenance of Certification in Anesthesiology (MOCA) Simulation Course Publication

CISL was one of the first wave of simulation programs to offer the one-day Maintenance of Certification (MOC) in Anesthesiology (MOCA) Simulation Course (MOCA Sim) for Board Certified anesthesiologists. To maintain the Board Certification, they are required to obtain various kinds of training and practice improvement experience on an ongoing basis in five year cycles. MOCA Sim runs very similarly to the Anesthesia Crisis Resource Management (ACRM) simulation courses run for anesthesiology residents. The day consists mostly of complex perioperative simulation scenarios, each followed by a nuanced whole-group debriefing. Since the inception of MOCA, many other sites have also been endorsed to offer the Simulation Course; most follow the lead of Stanford in mimicking the ACRM-like approach.

Although not a part of the MOCA Simulation Course itself, over the last six years MOCA Sim served as the host for a research project sponsored by the Agency for Healthcare Research and Quality (AHRQ) titled: *Creating Simulation-Based Performance Assessment Tools for Practicing Physicians*. This was an eight-site study by the research consortium Simulation Assessment Research Group that grafted performance assessment of volunteers from Course attendees onto already ongoing MOCA Sim session. Those who volunteered had their individual and team technical and behavioral performance on standardized scenarios assessed both in real-time and by specially trained post-hoc video raters. The principal investigator was at Vanderbilt University; CISL's Dr. Gaba was a major co-investigator. CISL supplied one of the four standardized scenarios for the study and Gaba led the team that developed the performance assessment rubrics, metrics, and instruments. In September 2017, the major paper describing the study was published in the premier peer-reviewed journal *Anesthesiology* [Weinger M, Banerjee A, Burden A, Mclvor W, Boulet J, Cooper J, Steadman R, Shotwell M, Slagle J, DeMaria S, Torsher L, Sinz E, Levine A, Rask J, Davis D, Park C, Gaba DM: *Simulation-based Assessment of the Management of Critical Events* by

Board-certified Anesthesiologists. *Anesthesiology* 2017; 127:475-489]. The paper was accompanied by extensive "Supplementary Digital Content"; describing many aspects of the work in sufficient detail for others to replicate it or learn from it. The project was a quantum leap forward in the study of experienced clinicians' performance in managing acute life-threatening events. Because of various logistical and pedagogical constraints, the study did not measure the skill or competency of individuals – many scenarios per person would be needed for that – but rather a measure of the performance of cohorts of anesthesiologists on the different challenging situations. The results indicated that while the bulk of performances were at an average or better level on most metrics, overall on the order of 20-25% of performances were rated in the lowest of three tiers of performance (labeled "poor"). This is an important finding, although it shouldn't be that surprising. For most anesthesiologists, acute life-threatening perioperative events are rare, so they will have little everyday experience at handling them. It should come as no surprise then that the performance was not uniformly good. Fortunately, there are many ways that perioperative systems assist the entire team to ensure that patient outcomes in such situations are often good – even when elements of performance are less than desired. Clinicians work as a team that can expand as necessary to meet the need, and at Stanford they can rely on the emergency manuals – a pioneering innovation by several members of the Stanford anesthesiology faculty. The study provides insights into how best to improve performance of individuals and teams, as well as clues to how simulation-based performance assessment can best be utilized in medicine.

SARG is doing follow-up analyses and papers (Gaba is the senior author on a "Lessons Learned" manuscript that was just submitted to *Simulation in Healthcare*) and it has recently applied for two new grants including another large one from AHRQ. CISL is proud to be a leader in the area of performance assessment in healthcare.

2017 CISL Symposium

The 10th Annual CISL Symposium, held on May 22, 2017 at the Li Ka Shing Center for Learning and Knowledge, brought together like-minded simulation professionals, friends, and partners in the simulation community under one roof to learn about and discuss the latest in simulation-based education and research. This year the event was headlined by keynote speaker Dr. Aaron W. Calhoun, Professor, Department of Pediatrics, University of Louisville, Director, SPARC Program, Norton Children's Hospital, who presented on *The Intersection of Ethics, Education, and Simulation: Exploring Difficult Issues*. The talk touched on a number of ethical questions relating to the use of deliberate deception to create more realistic scenarios and the use of mannequin death in response to inappropriate learner action. He discussed opinions concerning under what circumstances (if any) these techniques should be applied.



Dr. David Gaba welcoming audience to the 10th Annual CISL Symposium.



Dr. Aaron Calhoun (center) with CISL Assistant Dean, Susan Eller and CISL Associate Dean, Dr. David Gaba.

An afternoon workshop was also led by Dr. Calhoun who spoke on the topic of *Developing a Career in Simulation Research; Strategies for Young Investigators*. The presentation centered on the skills needed to move beyond basic questions and develop a career in education research. He discussed the need to learn the techniques to explore the assumptions behind research questions, and



Dr. Aaron Calhoun taking questions from audience during afternoon workshop.

he reviewed common errors made when designing, executing and disseminating the results of studies. The session also included several break-out sessions consisting of small-group conversations to explore challenges and share actionable tactics.

CISL Symposium Ignite presenters featured some of the exciting work being done in the field of simulation and how simulation was used to achieve their goals.



Pedro Paulo Tanaka, MD, PhD

Mock Objective Structured Clinical Examinations (OSCEs)



Jordan Newmark, MD and Marissa Heirich

Mechanisms Surrounding Unsafe Opioid Prescribing in an SP-based Simulation Module



Louise Wen, MD

Assessing Cognitive Load in Crisis Simulation



Tuulikki Keskitalo, PhD

Learner's Emotions in Simulation-based Medical Education



Felicia Hui, MD

Entrustable Professional Activities for Instructors of Simulation-based Team Learning



Adrian Marty, MD, MME

Entrustable Professional Activities for Instructors of Simulation-based Team Learning



Sarah Hilgenberg, MD and Rwo-Wen (Chloe) Huang, MD

a) De-escalating Angry Caregivers: A Randomized Controlled Trial of a Novel Communication Curriculum for Pediatric Residents
b) Ultrafest: A Free POCUS Symposium for Medical Students



Sandra Deane, BCS, CCC-SLP and Jennifer Kizner, BCS-S, CCC-SLP

Simulation-Based Learning Approach to a Flexible Endoscopic Evaluation of Swallowing (FEES) Training Course

2017 International Meeting on Simulation in Healthcare (IMSH)



Stanford Medicine was well represented at the recent International Meeting on Simulation in Healthcare in Los Angeles. Simulation Technology Specialist, John Fell, and Perioperative Education Simulation Coordinator, Teresa Roman-Micek, conducted a 90-minute workshop titled: *Intro to Silicone Casting, Molding, and Other Tissue Mimicking Materials*.

This experiential workshop instructed learners on terminology relating to silicone properties, mold making, and tissue mimicking materials. Participants then completed two hands-on activities: creating sutures pads and learning the steps to prepare a two-part silicone mold. The session concluded with some advanced information regarding the types of tissue mimicking materials available and their properties. Responses from the 60+ active participants indicated that they found the session informative and FUN!



CISL IMSH Presentation

Several members of the Stanford Immersive Learning team also presented: *Strengthen Individual and Team Leadership through Game-based Learning*. This workshop provided learners an opportunity to experiment with team exercises designed to identify teamwork challenges and explore the use of games as tools to supplement traditional simulation curricula.

The participants enjoyed the chance to practice teamwork through a variety of games, and several shared their enthusiasm on social media.

“CRM can be taught using games. Why not have fun while learning? #IMSH2018 @StanfordCISL”



Team Highlights



Inspiring Change Leadership Award

Mary Ayers is a 25 year employee at Stanford School of Medicine whose efforts and ambition lead her to her current role as CISL's Director of Operations where she expertly navigates the various challenges of scheduling and operational logistics for the school's educational efforts.

The award's rigorous eligibility criteria delineate that nominees must have demonstrated outstanding performance and initiated or led change and innovation affecting an entire work group, department, or multiple departments. What set Mary apart was her ability to successfully lead the ILC Scheduling Lean Launch Project by working with Service Excellence to engage EPS administration, CISL team members, and other School of Medicine stakeholders to streamline scheduling processes and reduce variability, errors, and turnaround time for all requests.

“The Lean Launch Team was so committed to our project and really made this happen. The award belongs to all of us.”

- Mary Ayers, CISL Director of Operations



Mary awarded the Inspiring Leadership Award by Marcia J Cohen, Senior Associate Dean for Finance & Administration

On May 25, 2017, Senior Associate Dean, Marcia Cohen formally presented the award to Mary commemorating her accomplishments, followed by a celebration attended by colleagues, family and friends. Please join us in extending your personal congratulations to Mary on the tremendous success she has achieved through her hard work and commitment to excellence.

It is CISL's distinct pleasure to announce Mary Ayers as one of two recipients of the 16th Annual Inspiring Change Leadership Award winners.

It was with mixed emotions that CISL announced that Teresa Roman-Micek was transitioning out of her role as Lead Simulationist at CISL into a new role as Program Coordinator, Periop Simulation at Stanford Health Care. In her new role, Teresa is working with Dr. Jim Lau from the Goodman Surgical Education Center (GSEC) and Sarah Hirx from Periop Education to deliver interprofessional OR simulations, and other in situ programs designed to improve systems and patient safety.

Teresa started as a Medical Simulation Technician in the Immersive Learning Center in 2010, and has been integral in the implementation of numerous simulation programs since that time. It would take an incredibly long article to list ALL of her contributions, but Teresa is an expert in working with faculty and coordinators to provide high-quality learning experiences with a variety of simulation techniques. The Department of Emergency Medicine recognized Teresa with an Award of Excellence in Medical Education this past June in honor of her work with programs such as Advanced Pediatric Life Support, Ultrafest, and Sim Wars (just to name a few). We have appreciated Teresa's cheerful attitude and attention to detail and know that some of you will miss her almost as much as her CISL team will.



“I was a student in a great simulation lab and I had curious and vulnerable teachers who worked to continually grow and provide the greatest example for med students, residents and attendings - David Gaba, Susan Eller, Lexi Buchanan, Steve Howard, Ruth Fanning, Sara Goldhaber-Fiebert, Kyle Harrison, Naola Austin, Erin Hennessey, Louise Wen, Calvin Kuan, John Kugler, Paul Mohabir, Bernie Dannenberg, Phil Harter, Rebecca Smith Coggins, Kimberly Schertzer, Laleh Gharahbaghian, Viveta Lobo, Niki Joshi, Ijeoma Okonkwo, Ed Shrader, Loren Sacks and Sondra Putnam.”

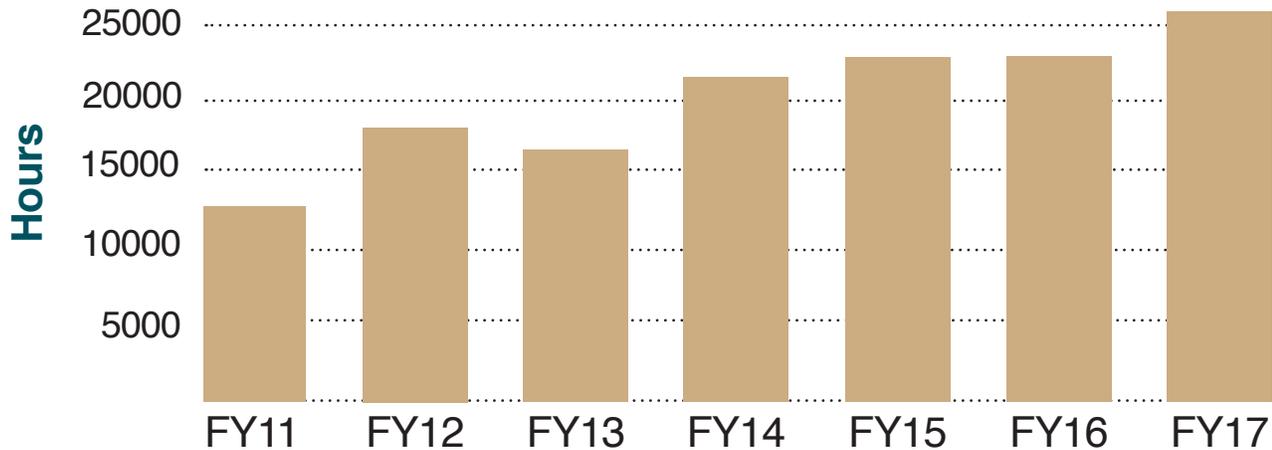
- Teresa Roman-Micek, Program Coordinator, Periop Simulation at SHC

“In a great classroom, the students aren’t the only learners. The teacher is a learner also. **When teachers are curious, when they are vulnerable, when they continue to grow...** they provide stronger instruction, and they provide a **great example for their students.**”

- Educator Danny Steele

FY17 ILC User Activity Data

Increase in Room Use Hours Since ILC Opened in 2010



Percentage of Use by User Group

Continuing Medical Education (CME)	2%
Graduate Medical Education (GME)	23%
Graduate / PhD Student	1%
Lucile Packard Children's Hospital (LPCH)	1%
Primary Care Associate Program (PCAP)	3%
Stanford Hospital and Clinics (SHC)	5%
Undergraduate Medical Education (UGME)	60%
School of Medicine (SoM) Other	6%

Affiliates

A special mention and thank you to our Stanford immersive learning affiliates who continue their work in patient safety, education, research and innovation.

CARDIOTHORACIC SURGICAL SKILLS AND EDUCATION CENTER

Contact: Paul Chang, MD

<http://med.stanford.edu/cssec/resident-training-program.html>

CENTER FOR ADVANCED PEDIATRIC & PERINATAL EDUCATION (CAPE)

Contact: Michael Kolaitis, NCEE, NRP, CCEMTP

<http://cape.stanford.edu>

GOODMAN SURGICAL EDUCATION CENTER

Director: James Lau, MD

<http://goodmancenter.stanford.edu>

VA PALO ALTO HEALTH CARE SYSTEM SIMULATION CENTER

Co-Directors: David M. Gaba, MD and Steve Howard, MD

http://www.paloalto.va.gov/anes_sim.asp

THE NEUROSURGERY VR CENTER

Program Coordinator: Malie Collins

<https://med.stanford.edu/neurosurgery/education/vr-lab.html>

Contact Us

Center for Immersive and Simulation-based Learning
Li Ka Shing Center for Learning and Knowledge
291 Campus Drive, Ground Floor
Stanford, CA 94305-5134

Web: cisl.stanford.edu
Phone: 650-724-8100